

Work Order ID 135958

135958

Page 1

Tuesday, August 25, 2015 1:07:34 PM

Item ID: D6103-003 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Round Billet, Aluminum
 Start Date: 8/25/2015 Start Qty: 12.00 *12* Cust Item ID:
 Required Date: 8/25/2015 Req'd Qty: 12.00 *12* Customer:
 Reference:

Approvals: Process Plan: MLJ Date: AUG 25 2015 Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6103	Rev B								

100 PURCHASING 0.00
 100
 Purchasing Memo 0.00
 Purchasing

Issue P/O: 25612 a) Description: Alluminum round billet b)
 Ø3.500" x 12.500" long c) Tolerance on all dimensions are +0.030"/-0.000"
 d) Material: 7075-T7351 (QQ-A-225/9) Material certification required

CX AUG 26 2015 12

110 Receive & Inspect for Damage & Mat'l Certs 0.00
 110
 Packaging Memo 0.00
 Packaging Ensure material certification is attached

12 DAS SEP 03 2015
66
9-89

120 QC6- Inspect dimensions to drawing 0.00
 120
 QC Memo 0.00
 Quality Control

12 DAS 14
9-89
15/09/08

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval			
Description Work Order Deviation				Disposition				Completed By			
Root Cause				FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
OTHER : _____											

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Start Date: 8/25/2015 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 8/25/2015 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>MAT043</u>	0.00							DAS 14 9-89
130									
Packaging	Memo	0.00				<u>12</u>	<u>0</u>		
Packaging	LOCATION: MAT043								<u>15/09/08</u>
140	QC21- Final Inspection - Work Order Release	0.00							
140									<u>SEP 08 2015</u>
QC	Memo	0.00				<u>MCS</u>			
Quality Control									

SH 20150908

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
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LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

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Work Order ID: 135958

135958

Parent Item: D6103-003

D6103-003

Parent Item Name: Round Billet, Aluminum

Start Date: 8/25/2015

Required Date: 8/25/2015

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP Rev:A New Issue 06-02-09 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6103-003P		Purchased	No			110	Each	0.0000	1	12			
D6103-003P										**			
Round Alum Billet													

SEP 03 2015
SEP 03 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

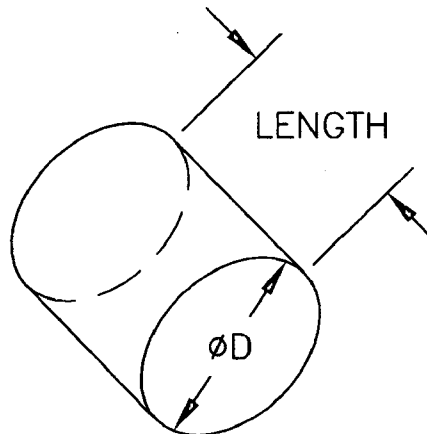
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DESIGN PH	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6103	Rev. B SHEET 1 OF 1
DATE 06.01.31		TITLE ROUND BILLET, ALUMINUM	SCALE NTS
A	01.04.10	NEW ISSUE	
B	06.01.31	ADD D6103-003	

SPECIFICATION CONTROL DRAWING

RELEASED
06.02.07 [Signature]



SHOWN BY
RPT. 9210
ENGINEERED
UNCONFORMING TO
SPECIFICATION, BECAUSE
WITH APPROVED
MATERIAL
NO-135958 MJS
15-08-25

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

Part No.	Alloy	D (Diameter)	Length
D6103-001	7075-T6/T651 (QQ-A-200/11 OR QQ-A-225/9)	Ø3.250	12.50
D6103-003	7075-T7351 (QQ-A-225/9)	Ø3.500	12.50

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**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 1

Shipment No:2714280

15/9/45

Ship From: A. M. Castle & Co. (Canada) Inc. MONTREAL - CASTLE METALS 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 02-SEP-2015	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 2714280-2	

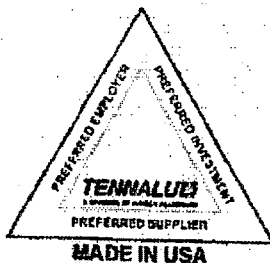
Shipment Details	Final Destination Branch - MON
-------------------------	---------------------------------------

Order No	Line No	Item No	Description				
4037578	1	8808.MO	3.5000..RD.7075.T7351.ALUMINUM.CF.144.0000 CUT TO 12.5 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS-QQ-A-225/9				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
29612		YOUR ITEM NUMBER: D6103-003		12.00 PCS		12.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
120163131	KAISER ALUMINUM			12			145.5045

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.	
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Date: Name:

KAISER ALUMINUM FABRICATED PRODUCTS

Tennalum
309 Industrial Drive
Jackson, TN 38301
731-423-2811



CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER 310060-1		CUSTOMER PART NUMBER 8808		PRODUCT DESCRIPTION Cold Finished Round		
KAISER ORDER NUMBER 700732	LINE ITEM 1	SHIP DATE 11/03/2014		ALLOY 7075	TEMPER T351	
WEIGHT SHIPPED 4222 lbs.	QUANTITY 30 pcs.	B/L NUMBER 37520		DIAM/DAFT/THICKS 3.500 in.	WIDTH 0.000 in.	LENGTH 144.0 in.
SHIP TO A M Castle & Co 3400 No. Wolf Road Franklin Park, IL 60131 USA				SOLD TO A M Castle & Co 1420 Kensington Road Suite 220 Oak Brook, IL 60523 USA		

Test Code: 1000 AC

Actual Physical Properties

Lot Number	LONG. UTS ksi	LONG. YTS ksi	LONG. ELONG. %	COND % IACS
20189333	70.8	59.3	15.0	39.3

DAS
14
8-89 5/09/08

Chemical Composition, WT. % (Aluminum Remainder)

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	OTHERS EACH	OTHERS TOTAL	Lot
Actual	0.13	0.29	1.4	0.04	2.8	0.19	5.8	0.03			20189333
Max	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.15	
Min			1.2		2.1	0.18	5.1				

Specifications

Standard: ISO 9001, ASTM B211-12, AMS 4124E, AMS-QQ-A-225/9A Non-Standard: A97075-11-R13

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ("Kaiser") hereby certifies that the metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

John Rennekamp, Quality Manager

John Rennekamp

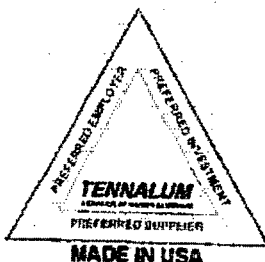
Plant Serial: 209932

Kaiser Order Number: 700732

Line Item: 1

KAISER ALUMINUM FABRICATED PRODUCTS

Tennalum
309 Industrial Drive
Jackson, TN 38301
731-423-2811



CERTIFIED TEST REPORT
<http://Online.KaiserAluminum.com>

Miscellaneous Notes

Made in USA

This material was melted and manufactured in the USA. Mercury is not a normal contaminant in aluminum alloys. Neither mercury nor any of its compounds were utilized by Kaiser Aluminum in the manufacture of this material. AS9100C:2009 The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

This material meets the requirements of (cold finished) T73 temper and QQ-A-225/9E (CANCELLED). NAFTA - YES. Material complies with FAR BAA (FAR 52.225-1, Buy American Act-Supplies), DFARS BAA (DFARS 252.225-7001 Buy American Act & Bal of Payments Prog), and FAR TAA (FAR 52.225-5 Trade Agreements). No weld repair. This material is RoHS 2 compliant.

Castle Metals FP
HEAT NUMBER 20189333
MECHANICAL ID _____
ITEM CODE 8808
LOT NUMBER _____
PO NUMBER 310060
RECEIPT DATE 11-6-14
SUPPLIER Kaiser
SPECIFICATION _____
LCS F
COMMENT _____
APPROVED L

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ("Kaiser") hereby certifies that the metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

John Rennekamp, Quality Manager

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6103-003
 DATE: 15/09/08

PO / BATCH NO.: 29612/135958

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 12
 QUANTITY INSPECTED: 12
 QUANTITY REJECTED: _____

THICKNESS ORDERED: 03.50 X 12.50
 THICKNESS RECEIVED: 03.50 X 12.50
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒	
CORRECT FINISH	☒	N	
CORROSION	Y	☒	
CORRECT GRAIN DIRECTION	☒	N	
CORRECT MATERIAL	☒	N	
CORRECT THICKNESS	☒	N	
PHOTO REQUIRED	Y	☒	
CORRECT MATERIAL	☒	N	
CORRECT REF # TO LINK CERT	☒	N	
CORRECT MATERIAL IDENTIFICATION	☒	N	
CORRECT M# ON THE MATERIAL	☒	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW				
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D
SIZE OF TEST SAMPLE				
HARDNESS / DUROMETER READING				

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>14</u> <u>9-89</u> DATE: <u>15/09/08</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

INSTRUCTIONS FOR INSPECTING BAR, TUBING, ROUND, & SHEET STOCK

- 1- VERIFY STOCK TO DART PURCHASE ORDER
- 2- MEASURE ALL DIMENSIONS FOR EACH PURCHASED STOCK
 - a. WIDTH, THICKNESS, DIAMETER, WALL THICKNESS & LENGTH
- 3- VERIFY CONDITION OF MATERIAL i.e. DAMAGED, CORRODED, etc.
- 4- VERIFY THAT SUPPLIER HAS A NUMBER (HEAT #) ON ITS RECEIVING REPORT TO LINK TO MATERIAL CERTS
- 5- VERIFY MATERIAL CERTS ARE CORRECT TO THE DART PO INSTRUCTIONS
- 6- REMOVE / CUT A PIECE OF MATERIAL FOR SAMPLE HARDNESS TESTING

INSTRUCTIONS FOR INSPECTING SKIDTUBE & STEP EXTRUSION

- 1- VERIFY TO DART SUPPLIED DRAWING
- 2- SAMPLE INSPECT MATERIAL IN BUNDLE TO ENSURE MATERIAL CAN BE RECEIVED INTO DART
- 3- USING PORTABLE HARDNESS TESTER VERIFY HARDNESS OF THE MATERIAL TO THE DRAWING
- 4- VERIFY THAT MATERIAL CERTS MATCH TO WHATS CALLED UP ON THE DART DRAWING

AFTER MATERIAL PASSES INSPECTION

- 5- HAVE DART EMPLOYEES START STOCKING MATERIAL BUT REQUEST MIN 20pcs FOR FULL INSPECTION
- 6- INSPECT ALL DIMS AS PER DRAWING REQUIREMENTS

INSTRUCTIONS FOR INSPECTING CROSS TUBE MATERIAL

- 1- VERIFY MATERIAL CERTS MATCH THE REQUIREMENTS ON THE DART DRAWINGS
- 2- INSPECT MIN. HALF THE BATCH OF EXTRUSION RECEIVED INTO DART
- 3- INSPECT MATERIAL AS PER THE EXTRUSION REPORT
 - a. WALL THICKNESS USING ULTRA-SONIC IN 4 LOCATIONS
 - b. OUTSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - c. INSIDE DIAMETER HIGHEST/LOWEST BOTH ENDS
 - d. STRAIGHTNESS @ CENTER OVER 12" SPAN
 - e. WALL THICKNESS USING TUBE MICROMETER HIGHEST/LOWEST BOTH ENDS
- 4- IDENTIFY EACH TUBE IN SEQUENCE OF INSPECTING (TUBE 1, TUBE2.....) AND W/O# AND PO#
- 5- RECORD ALL FINDINGS ON EXTRUSION REPORT

IF ANY QUESTIONS PLEASE SEE QC COORDINATOR BEFORE GOING FURTHER